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ABSTRACT

The May 1985 program session of the Library of Congress Network Advisory Committee focused on the identification of key issues in the networking field. Presentations included discussions of major network developments in the last two decades, the changing network players, the impact of technology on networks, and library networks and the law. The introduction to this document includes a brief summary of major topics raised: network participants, the end user, legal issues, and the future of networking. The following papers are included in their entirety: (1) "Issues in National Library Network Development: An Overview" (Barbara E. Markuson); (2) "Networks: Changing Roles" (Susan K. Martin); (3) "The Impact of Technology on Library Networks and Related Organizations" (Ronald F. Miller); and (4) "Library Networks and the Law" (Noel E. Hanf). A list of conference attendees, a glossary of acronyms and abbreviations used in the submitted papers, summaries of the working group sessions and business sessions, and a conference agenda are included. (THC)

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NETWORK PLANNING PAPER NO. 12

Key Issues in the Networking Field Today

Proceedings of the
Library of Congress Network Advisory Committee Meeting
May 6-8, 1985

Network Development and MARC Standards Office
Library of Congress
Washington

1985

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FOREWORD

The Library of Congress Network Advisory Committee focused its May 1985 program session on the identification of key issues in the networking field in order to provide assistance to the National Commission on Libraries and Information Science (NCLIS) in revising the networking section of its 1975 program document, Toward a National Program for Library and Information Services: Goals for Action. Invited speakers set the stage for the meeting deliberations. Presentations included discussions of major network developments in the last two decades, the changing network players, the impact of technology on networks, and library networks and the law.

I gratefully acknowledge the efforts expended by the Program Planning Committee - C. James Schmidt (chair), Toni Carbo Bearman, Betty Davis, Charles T. Payne, and Louella V. Wetherbee - to make the meeting a success. My special thanks go to Barbara E. Markuson, Susan K. Martin, Ronald F. Miller, and Noel E. Hanf for writing papers and presenting them at the meeting. In addition, I express my appreciation to Erika Love for summarizing the program session which provided an ideal introduction to these published proceedings, and to Sigrid G. Harriman for editing the results of the working group sessions (with the assistance of the group recorders), preparing a summary of the business meeting, and putting the various pieces of this publication together.

This document has been issued as proceedings of the Library of Congress Network Advisory Committee within the Network Planning Paper series. In the interest of time, the papers presented at the meeting were not retyped for consistency. For this reason, the citations and references for each paper are numbered separately and placed at the end of each paper. A glossary of acronyms and abbreviations used in the submitted papers has been developed to assist the reader. The opinions expressed in the proceedings are those of the speakers and do not necessarily represent the opinions of their organizations.

Henriette D. Avram
Chair, Network Advisory Committee

October 30, 1985

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AMIGOS Bibliographic Council	Louella V. Wetherbee
Association of Research Libraries	William J. Studer
Chief Officers of State Library Agencies	Fay Zipkowitz
Cooperative Library Agency for Systems and Services	Ronald F. Miller
Council on Library Resources	C. Lee Jones
Federal Library and Information Center Committee	James P. Riley
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Medical Library Association	Erika Love
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American Library Association	Carol C. Henderson
Information Industry Association	Betty Davis
National Commission on Libraries and Information Science	Elinor M. Hashim Diane Yassenoff Rafferty
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INTRODUCTION

After more than two decades of network development and a meteoric increase in library networking activities, a review of major developments and challenges facing libraries today is in order as we look toward the future.

The meeting of the Library of Congress Network Advisory Committee (NAC) on May 6-8, 1985, in Washington, D.C., was devoted to the topic of networking. The meeting's major purpose was to identify key issues in the networking field and to initiate a process designed to assist the National Commission on Libraries and Information Science (NCLIS) in revising the networking section of its 1975 program document, Toward a National Program for Library and Information Services: Goals for Action.

Barbara Evans Markuson, executive director of the Indiana Cooperative Library Services Authority, reviewed major developments since the late 1960s. Susan K. Martin, director of libraries at the Johns Hopkins University, discussed networks and the changing roles of the "players." Ronald F. Miller, executive director of the Cooperative Library Agency for Systems and Services (CLASS), summarized the impact of technology on library networks and related organizations, and finally, Noel E. Hanf, an attorney with Wiggin and Dana, looked at library networks and the law.

The basic content of these papers and the subsequent group discussions during the two-day meeting, briefly summarized below by Erika Love, led to new insights and the realization that recent developments depart somewhat from traditional concepts of library cooperation for the common, or greater good.

Network Participants

Initially a cooperative enterprise of Ohio libraries, today the Online Computer Library Center (OCLC), is the largest bibliographic utility in the United States. There are, in addition, local, state and regional network groups composed of member institutions which realize a common goal through reliance upon computer and communication technology. Their prime concern is library resource sharing through improved interlibrary loan and document delivery management, circulation control, and bibliographic location services (union lists). Most often these networks rely upon the services of such bibliographic utilities as OCLC, the Research Libraries Information Network (RLIN) of the Research Libraries Group (RLG), the Washington Library Network

(WLN) (called Western Library Network since June 1985), and UTLAS, Inc. (the University of Toronto Library Automation System). The latter, once a university-based network, has now become a private sector network through its acquisition by International Thompson. Another category of networks includes the regional service organizations which facilitate expansion of the utilities, i.e., AMIGOS Bibliographic Council, Cooperative Library Agency for Systems and Services (CLASS), Illinois Libraries Network (ILLINET), New England Library Information Network (NELINET), Southeastern Library Network (SOLINET), and the like.

The first federal agency to mount a comprehensive network plan, introduced in the late 1960s, was the National Library of Medicine (NLM). The plan encompassed bibliographic control of the health sciences literature through cataloging, indexing, and information retrieval access. Essentially, NLM stood alone in its efforts to provide information access in tandem with bibliographic control in its networking plans. A major reason for the successful development of this network was NLM's specific subject oriented mission, in contrast to academic research libraries whose breadth of collection did not as easily lend itself to this approach. In fact, library networks' concentration on bibliographic control rather than access has given rise to the rapid development of searching and retrieval techniques in commercial abstracting and indexing (A&I) services, leaving some library networks behind in their retrieval techniques. Only recently has OCLC decided to mount part of its database for subject access on the Bibliographic Retrieval Service (BRS). It will be interesting to observe how this integration of network services will be used by the library community.

The End User

A second significant factor in network development is the lack of attention given to information needs of the real end user. (To all intents and purposes, the end users in the library network environment were librarians, not their user clientele.) Again, NLM was first to identify and pay genuine attention to another end user segment, namely the health science practitioner and researcher. In planning for network services, librarians generally had left users out of their plans, and it was not until commercial information database services came to the fore that the end user played an important role in networking endeavors. Hence "for profit" vendors concentrated largely on areas that had been neglected in library based networking activities but that were useful and welcome enhancements of services to local library clientele.

As a result, libraries suddenly found themselves in an environment where they not only cooperated on a reciprocal basis in networking activities but also paid for access to commercial network organizations when it served the interests of their own clientele. Increasingly sophisticated technology sparked the development and proliferation of library networks and related organizations, and

indeed libraries, showed enormous creativity in finding funds as well as in developing innovative and cost-effective uses for network services. Use fees for the OCLC network, membership fees to the regional service organization to obtain OCLC services, for example, as well as payment of access charges to BRS, DIALOG Information System, and other database systems, emerged alongside cooperative reciprocal agreements for local, state and regional networking activities where money rarely changed hands. In fact, the lines between not for profit and for profit networks have become rather blurred. Today's library belongs to a number of networks because various networking technologies have vastly expanded information control and retrieval power. At the same time an increasingly complex networking environment poses a host of questions for libraries engaged in this activity as well as for those to whom technology has not yet become available.

Legal Issues

Equality of opportunity to access information via networking remains a key issue for libraries, as does the continuing definition of rights and responsibilities in light of changing technology. Because technology develops rapidly, it inevitably encounters situations for which the legal system has not yet developed rules. Recent events indicate a general lack of legal commonality among networking participants. The private sector maintains its competitive edge through confidentiality, exclusive control of know-how, and restricted use of data. The public sector, on the other hand, has an interest in sharing and disseminating information. The extent of cooperation between the two will determine the future success of networking to a much greater degree than any legal developments.

The Future of Networking

There is as yet no consensus regarding the characteristics and goals of networks. The "players" and their roles in the networking environment continue to change. A common understanding is needed, an accepted definition of what networking is or should be.

Major issues identified during the two-day NAC meeting can be categorized as follows:

- o Definition: Goals and characteristics of networks
- o Governance: Role relationships of local, regional, and national networks
- o Products and services: Standards and standardization, quality control
- o Planning and coordination: Linking networks, statistics and planning data for costs, markets, users, and research and development
- o Economic, legal issues: Ownership of data, restrictions on use of data, competition with commercial services
- o Need for strong leadership

The Network Advisory Committee developed a series of recommendations designed to initiate action on these issues. It was agreed that NAC should (1) assist NCLIS in developing a strategy from a networking perspective to revise the 1975 program document, incorporating NCLIS programs and plans for the proposed 1989 White House Conference on Library and Information Services. (2) Identify a "common vision" for the networking community to guide future planning. (3) Strongly urge the Secretary of Education and directors of other appropriate agencies to carry out their important responsibilities for gathering and disseminating library and networking statistics. (4) Become a catalyst to convince the library and information community of the importance of networking, i.e., "personalize" it. (5) Address the impact of local systems developments on nationwide networking. (6) Commission a paper on the future of print materials. (7) Urge federal support for networking and library services. (8) Examine networking in other fields and identify potential implications for library and information networks.

ISSUES IN NATIONAL LIBRARY NETWORK DEVELOPMENT: AN OVERVIEW

Barbara Evans Markuson*
April 1985

Introduction.

This paper presents a brief review of some key developments in computer-based networking over the past two decades and the major issues facing us as we contemplate the next decade of networking. These key decisions helped shape the current structure of library networks and are provided as background to help us reflect on where we are, how we got here, and where we want to go. Perhaps "decision" is too precise a term to describe the results of our collective groping, first to understand the potential of automation, then to deal with the complex set of technical, financial, organization, and service issues that networking includes.

Relecting on network history as a set of decision points where we took this path and not that, seized this opportunity and not that, involved these groups and not those, may help us assess the strengths and weaknesses of our collective actions. I hope it will be instructive to set the context of current networking in the matrix of past decisions and raise our awareness of the long-term impact of current decisions.

The Evolving Network Structure: Bibliographic Control

In the early 1960s, three major areas of library and information automation were emerging. These were:

a) automation of abstracting and indexing,

b) automation of catalog records, and

c) automation of library circulation.

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* The opinions expressed herein are the author's and are not to be construed as official statements of the Indiana Cooperative Library Services Authority.

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These areas can be viewed as paradigms for networking for information access and retrieval, networking for bibliographic control, and networking for local operational support. A key decision was the singling out of bibliographic control as the premier national network function and the concentration of development, attention and support, for the past two decades, on this function.

Information retrieval and control of non-monographic literature was treated with benign neglect, while circulation and other local library operations were early characterized as local in scope, and even as unamenable to networking. This focus significantly influenced the problems defined as within the scope of national network concerns and the people who participated in addressing these problems. For example, academic research libraries were assumed to be the most concerned with national bibliographic control so that school, college, public and special libraries were generally excluded from significant participation and influence in network planning. The concentration on monograph literature lead to the exclusion of groups concerned with control of other formats.

During the early 1960s and 70s, there were rapid advances in information retrieval technology. Initial efforts concentrated on control of scientific and technical literature and on providing better access to the technical report literature. Government funding was crucial to these developments; agencies such as COSATI and the National Science Foundation stimulated new projects, services, and approaches.

However, among libraries participating in early discussions on library automation and networking, the academic research library was predominant. Since neither these libraries nor the Library of Congress perceived control of technical report literature and automation of abstracting and indexing as crucial to library automation planning, there was little interaction between these early efforts at automating the library, on the one hand, and automating access and retrieval on the other. Thus, the potential of a unified library network

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system that would encompass and integrate both functions was overlooked.

Although prophets were promoting marvelous systems by which the engineer in Boise would have instantaneous access to a data base of journal and technical report citations in a computer located, say, in Boston, librarians appeared not to respond to these scenarios as much as they did to other prophets who were describing systems in which catalogers in Boise would have access to an automated National Union Catalog at LC. For librarians, the field of abstracting and indexing appeared diffuse and unstructured and it was more difficult to get a handle on what was going on. At any rate, the vision, energy, and motivation to develop standards for both A&I and catalog records in an integrated approach simply wasn't there.

The results of these decisions are with us today. The failure of librarians to play a more dominant role contributed to development of commercial networks as the primary distribution mode for information retrieval services. Concentration on control rather than acess has resulted in a situation today in which, in contrast to the advances in content analysis, searching and retrieval techniques in the commercial A&I networks, retrieval techniques provided by library networks and online catalog systems are quite primitive. The reluctance to provide full subject-access on the OCLC database, the slow pace in providing full access to name and subject authority files, and the low priority given to handling analytics are evidence of the continuing priority of control over access.

Furthermore, the failure of library networks to build a capability for capturing A&I records built by libraries throughout this country, particularly for indexing of local materials, continues. The long range issue of access to data bases whose commercial value has become marginal, especially when library networks do not presently have the capability, or even future plans to serve as an eventual repository for these files should at least

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stimulate us to consider actions we could take now to ensure access in future decades. The recent decision by OCLC to mount part of its data base for subject access on BRS will suddenly give thousands of libraries the capability to access bibliographic records through the bibliographic network software and through the BRS retrieval software. It will be interesting to learn how this late and tentative integration of network services develops.

The Evolving Network Structure: Missions

The National Library of Medicine took the lead in developing a comprehensive network plan which encompassed control of the health science literature including both cataloging and information retrieval access. The network included a system of state and regional access nodes and included document delivery. NLM's plan bridged the gap between the bibliographic and the information retrieval network.

In hindsight, it seems that this innovative and early network plan had the potential to become the major conceptual model of how a national library network could be built. Several explanations of why this didn't happen seem plausible. First, NLM's role in providing both cataloging and indexing access to a subject literature was atypical of research libraries. Second, NLM users did not aggressively promote the NLM approach as a model which could be replicated for other fields. And, finally, with the exception of the National Library of Agriculture, major research libraries were not organized along subject-oriented missions. Plans to build a national library of science and technology based on LC's collection aborted.

In addition to the fact that the large research library was not specialized by subject, available technology also influenced our concepts of national network design. Large main frame computers coupled with telecommunications systems that supported remote terminals lead naturally to the model

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of a highly centralized, universal, hierarchical, national bibliographic network. This model also neatly fit tradition in that we had a long eperience of distributing catalog records nationally from a centralized source at LC. The NLM model would have required, instead, a network of peer networks rather than a single centralized network of research libraries. If such a model had become dominent, solving the technology and economics of network linkage would have had a very high priority.

Technology, tradition, and organizational structures all argued against a discipline-oriented approach to networking. As a result, networking developed around generalized rather than subject specific databases. The problems of accomodating libraries that wish to provide in-depth analysis of certain materials within a generalized bibliographic database have yet to be satisfactorily solved. In addition, providing effective control over the various authority and classification systems used by network members is still a problem.

Given the path we took, we need to consider whether progress in national bibliographic control has been uniformly achieved across all disciplines, whether developing discipline-oriented sub-sets of network databases is viable and whether working with A&I services to integrate network and A&I databases in special subject areas would benefit users. In addition, the manipulation of network databases to generate resource lists for specialized subject areas or to accomodate standing profiles of user interest groups remains to be fully exploited.

The Evolving Network Structure: The End User

NLM's plans were also notable for the attention given to the information needs of the end user - the health science practioner and researcher. In contrast, the network plan[1] prepared for NCLIS never came to grips with how the national network would actually deliver services to citizens seeking infor-

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mation. We followed top-down planning. Yet network planning occurred during a period of signicant research on user information needs and habits. Among others, Russell Ackoff and his associates, proposed a network designed from the user's viewpoint.[2] Although we left users out of our network plans, Dr. Ackoff did not leave libraries out of his. His con ceptual network design as described in "The SCATT Report; a Tentative Idealized Design of a National Scientific Communication and Technology Transfer System" provides a model for a user-oriented network system. Ackoff considers products and services which the network must deliver to meet users needs and suggests ways in which libraries can organize to support networks for users.

While users were idealized as the raison d'etre for networking, the attention given to users as a significant network component was quite casual; to all intents and purposes the real end users were librarians. I, myself, wrote a state network plan[3], which is typical in its failure to come to grips with network service to users. Thus we had a richer conceptual basis for bibliographic control networks for librarians than for information networks for users.

The White House Conference provided an incredible literature and testimony concerning the information needs of all types of citizens. As far as I am aware, no efforts were mounted to explore network models designed to meet these needs. I am not suggesting that computer-based networks would have been the only kinds of appropriate or relevant network models but rather that concentration on networks to serve librarians has dominated our thinking about national network design and development.

The decision to relegate users and the local systems by which they would connect to national systems to network never-never land simplified the set of problems we had to solve in the short run and may have increased them in the long run. Certainly the design of local systems has largely been left

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to commercial vendors of turnkey systems. Yet, even here, we have failed to assist these efforts by developing specifications that would facilitate integration and information transfer between local and national networks. The printer port has been the principal integrating device between local and national systems to date.

The Evolving Network Structure: Political Structure

The NCLIS report "Toward a National Program for Library and Information Services: Goals for Action,"[4] lays out a political structure for organizing the national network. The Federal government role was defined as coordination, incentive funding, and management and operation of certain network components. States were major components in the NCLIS network plan, but state and local roles are less well developed.

Through regional and national library meetings and hearings, the NCLIS plan was widely discussed, and was generally endorsed although scepticism was expressed in some quarters about the scope and complexity of the task and the proposed Federal role. The plan, as a whole, accomodated or at least mentioned all types of libraries and a broad range of proposed library services.

Despite general agreement with the concept, no significant political effort was mounted to get the plan funded, the proposed agency created, and the work underway. Don Swanson has argued persuasively that such an agency would have been doomed to failure given the complex task outlined.[5] Whether or not this would have been the case, it has been said that "Any long-range plan contributes to the tyranny of the future." Perhaps plans that generate support, rather than action, are the most tyrannical of all.

While the NCLIS plan stimulated interest in networking and in the potential for coordinated action, it also contributed to the perception that the network would be handed down from on high, that ongoing efforts were not the

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"real" networks, that the national network had yet to evolve, and that the unstructured, ad hoc network organizations which emerged were somehow usurping roles that properly belonged to national planners. The plan also delayed the reality that Federal funds for national networking would not soon materialize.

National network talk also trapped us into fuzzy thinking. Throughout the NCLIS report, and, indeed, in much of network literature, we read about "national information resources," we find library collections described as a "national resource," and libraries described as constituting the "nation's library system" and a "national library system" to cite just a few examples. The reality is that the majority of library collections, services, and access are provided by local, not national, agencies using local, not national, funds, and that any extended access to these local collections has come about through professional cooperation and operational necessity. The reality is that our tremendous system of nation-wide access to library holdings would stop dead in its tracks without constant local commitment and financial support. That local funds largely support, and local staffs largely operate, access and resource sharing on a nation-wide basis is totally obscured by the casual description of local holdings as a national resource.

The need to face this reality in the future will be more important as bibliographic control and local library resources are diverted from national network objectives to local network interests. We need to make it known to Federal and state governments, and to the general public, that the extraordinary access to interlibrary information enjoyed in our country rests on local funding, local initiative, and professional cooperation on a virtually unique scale. Whether we can sustain continued national access to local collections without some Federal financial support is a critical issue for the next decade. Prospects for increased funding appear dim, but it may be more politically feasible to get Federal funds for state and local efforts to build

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a national network than it would have been to fund a Federal library network agency to build state and local networks.

NAC itself has clearly recognized that many of the objectives outlined in NCLIS network plans have been achieved, albiet by different routes and by different agencies that originally envisioned. What is not so clear is how best to generate a new network plan and how best to achieve national coordination when and where needed.

The Evolving Network Structure: The Role of State Agencies

Despite the endorsement of NCLIS and other plans as to their vital role in the national network, state library agencies did not play a major role in formulating plans for computer-based national networks. State library agencies appear not to have pursued further clarification of their specific tasks as envisioned in the NCLIS plan, nor did they make concerted efforts to present alternative models for the state component of the national plan. Nor did state libraries assume leadership when the proposed Federal coordinating agency failed to become a reality.

With respect to network development, a notable exception was the Washington State Library which took the lead in developing a prototype MARC-based state network which subsequently proved to be bibliographically sound, technically viable, and transportable. WLN's work proved that technical and financial capability existed at the state level to mount significant network services. Another model of networking was, therefore, at hand. We could build a national network based on replication of the Washington Library network, or a similar system, in as many states as necessary. State libraries had both an appropriate mission and an annual influx of outside Federal dollars to have supported such a development. Despite the potential of this approach, this model was overlooked. I do not recall serious discussion of a network of state networks as a viable aproach to building a national network.

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We can speculate why the WLN achievement did not lead to rapid implementation of replicated or similar systems. Perhaps state libraries did not perceive of themselves as having a responsibility for an ongoing operational service to libraries. Perhaps their chronic condition of under funding made it less possible for them to take risks and perhaps they lacked the organization and experience necessary for concerted interstate planning and action.

One other factor might also have prevented action. Unless the state network model received strong national support the already identified national bibliographic control needs could not be met. Unless a lot of states acted in concert the ability to support large research libraries and national resource sharing would be compromised. Thus, the needs of research libraries may have dominated our conceptions of feasible state network design.

I should note in passing that the newly organized non-profit state and regional networks, such as SOLINET, NELINET, ILLINET, and INCOLSA also failed to take advantage of replicating either WLN ,or OCLC, which, we must remember, in its early stages was also a state network. Replication, which today we would call "turnkey" was, in the early 70s, considered by many to be a task so complex as to be beyond the capability of state and regional groups. OCLC took the position that replication was not feasible, although it now distributes turnkey systems. WLN's considerable success in replication of its system has been mainly with large academic libraries and with networks outside the U.S.

As was evidenced by NAC's recent discussion of state network plans, the legacy of these decisions has been a dichotomy between national and regional network planning and state library planning. The role of the states, where, we must remember, a significant amount of library development money is spent each year, in national planning is still unclear. The specific network functions that states should support is an unresolved issue.

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Initially, there was tension over the division of reponsibility between the state library and regional networks in planning and service delivery. These relationships seem to be stronger now as recognition of the specialized roles of each group has grown, and as the need for stronger planning efforts at the state level increases. Many networks now receive a significant level of support through LSCA funding, state aid, and through various state contracts and support services.

The potential of state libraries to make a major coordinated effort to support both national and state network development, to participate actively with networkers in bringing the needed "bottoms up" approach to national planning, and to fund interstate demonstration and development projects is a significant, virtually untapped resource. The political reality that libraries, librarians, and users have a geographic and funding basis in their state should be a factor in our planning. Many of the goals and objectives of the NCLIS plan have been incorporated into state library plans and state librarians have been leaders in encouraging and stimulating all types of interlibrary efforts.

The Evolving Network Structure: LC's Role

Perhaps the seminal network decision was made by the Library of Congress when it decided to move the MARC project from a pilot demonstration stage to an ongoing operation. One of the hallmarks of major breakthroughs is the creativity and entrepreneurship that they stimulate. Today MARC is the cornerstone of many commercial and local systems and is the foundation upon which networking has grown and prospered.

As one who has worked with MARC at the national, regional, state and, now at the local database level, I am still impressed by its flexibility. The stamina shown by LC over the years in coordinating the MARC format through its many development stages and its application to an ever widening array of

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material types is notable. The support of MARC alone would assure LC its place as the key output node in the national network.

It was only a small leap of faith from LC's role as keeper of MARC to LC as builder of a national, MARC-based network. Some of the earliest discussions of networking, for example, the report "Automation and the Library of Congress," envisioned networks evolving from linkage of locally developed systems with large research libraries as principal nodes. Therefore, perhaps the earliest and most widespread network model was one in which LC was the center of a bibliographic network system to which libraries and networks of linked. The success of the MARC project and service, LC's tradition of high quality, conscientious service, its premier status in size and scope of collections, staff, and operations, and its long standing central role in American library service and bibliographic control made it seem like the most natural candidate to operate the national network.

What was not as obvious was that LC's very complexity and the demands from its many constituencies would compete with national network implementation. The need to provide automation for copyright service, for the blind and physically handicapped, for MARC, for Congress, and for its own internal operations, would strain LC's resources and energy.

Although many of us believed that LC was, in fact, the most feasible Federal agency to coordinate the national library network; the administration of LC, in full command of all the sober realities of its operation and funding did not, as far as I am aware, ever seriously consider such an extension of its responsibilities. Thus, even though LC seemed a logical choice and even though the proposed Federal network agency failed to materialize, LC did not pursue the role of national network center and made it clear that it would not do so. Since neither of the other national libraries had a broad mandate, the

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result was that the U.S. network would not be planned, administered, or operated by a national library.

LC's primary influence on networking would become its MARC and cataloging services, its own experience in automation of a complex variety of services, its innovation in new technologies, and its role as secretariat of NAC, of which more later.

The Evolving Network Structure: Commercial Services

Apparently no venture capitalist read the library network literature and sensed that building a national library network would be a lucrative market promising both high return and low risk. Neither did groups of firms already providing library services join in a collaborative venture to mount a commercial version of the national library network.

For profit vendors have concentrated largely in areas neglected in national planning -- on local systems and support services, such as retrospective conversion, COM catalogs, and union list maintenance. However, vendors are providing systems that are capable of supporting groups of libraries in local and state-wide network systems. In addition, the recent purchase of the UTLAS network by the international corporation which also owns Carrollton Press introduces the potential of a for-profit network with a very large database and a significant experience in library service. It will be interesting to see how this type of network will develop. To date, Carrollton's services have largely been in retrospective conversion. The prospect of integration of both private and for-profit library networks has been with us for a long time as a local and state need and it may also become a national need as well.

Getting vendors to cooperate when one is dealing with them on a case by case basis at the local level is difficult. If we are to rely on for-profit vendors as major providers of the local network component, we need to involve them much more actively in defining requirements for standardization,

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providing full MARC capability, working toward linked systems, exploring low cost technology for small libraries, and making effective use of telecommunications. Development of a standard set of specifications for interfacing local systems to national network systems which could be incorporated into RFP's would be a first step in bridging the gap.

The Evolving Network Structure: New Organizations

In retrospect it seems clear that while national libraries, Federal agencies, state libraries, academic research libraries and various other national library interest groups worked to promote the idea of a comprehensive national library and information network, none of these groups actually risked undertaking its development.

Perhaps we should not be surprised that this happened. Peter Drucker argues strongly[6], that "Without a shadow of doubt, major technological change creates the need for social and political innovation. It does make obsolete existing institutional arrangements. It does require new and very different institutions of community, society, and government" and "specific technological changes demand equally specific social and political innovations."

Much of the early literature about automation expressed concern that librarians would resist innovation and change. The incredible growth in library automation, the rapid increase in cooperative database size with library holdings reports now in the hundreds of millions, the tens of thousands of network and local system terminals now in place contradict that charge. What should have been more of a concern and what may have escaped those of us without Druckerian insight is that the library as an institution might be resistant to change. That is, it is probably much more difficult for the institution itself to take on dramatically different roles than it is for those who work in the institution. In any event, neither LC nor large research libraries provided the computer systems design and the organizational focus for the national

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library network, although they took a major and significant part in the acceptance and growth of networks. A more central role in networking might have been inappropriate for these libraries, since they would not have met Drucker's test of being "new and very different organizations."

The end result of all of these decisions was that the stage was set for networks to be built and operated outside the traditional library structure by new organizations specialized for library innovation and technology transfer. These organizations resulted from the need to respond to and cope with innovation and change, to cooperate for effective automation, and to provide a mechanism for joint funding and risk-taking.

The energy and vision of librarians in every state and in all types of libraries resulted in the creation of new organizations at local, state, regional, and national levels. The local consortia group, the state network, the regional network, the bibliographic utility, and NAC itself are all examples of organizational change to accommodate technological change. Causal factors were a library value-system which stressed cooperation and resource sharing, the early work of organizations such as NLM, OCLC, and WLN which demonstrated the technical feasibility of networks, and LC's dissemination of MARC records, rather than specific national guidance, direction or incentive.

That a new organizational structure to deal specifically with networking would be needed was slowly recognized. However, the rapid growth and success of library consortia in the 1950s and 60s should have alerted us to the potential of an equally rapid development of an extralibrary network structure in the 70s and 80s.

Networks would be built and operated by groups of people who were committed to networking but who had no specific mandate or state or national authority or responsibility. Inevitably, these groups had interests which were more parochial than those proposed for a Federal cooordinating agency. Much of

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the Sturm and Drang period of networking (most of the 70s) can be attributed to both the creativity and clash as the new network institutions tried to fit into an existing organizational structure based on library roles and traditions and into a network drama which was to have been directed by an agency which didn't make the scene.

The idea of a Federal coordinating agency was widely discussed. The library field had a reasonably good track record in legislation, was eager for networking, and, has been shown, was not loath to create new organizations. Even so, a crucial opportunity was passed up and the stage was set for a diversified, loosely coordinated network development. Thus the critical decision path lead us to a network structure on a larger scale than would have been feasible by linking individual library nodes. It lead to a structure which has allowed unparalled technology transfer and access to new sources for capitalizing library network development. But it may also have lead us to a structure which takes a more limited and less responsible role than the NCLIS plan envisioned and one in which the network contract may prove to be a poor surrogate for a comprehensive national library network policy and plan.

Part II. The New Organizations

Choice of Structure: The stimulus provided by automation, the potential for resource sharing, the lack of risk capital, the scarcity of technical talent, and the scepticism that someone else solve their problems for them, caused groups of librarians to band together in a concerted, cooperative approach to automation. With few exceptions, these groups chose to establish new organizations or to affiliate with extra-library agencies. The new multi-networks added a new dimension to the traditional state and national orientation of library service.

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Energies were absorbed in dealing with very basic problems. How to organize, how to handle group decision-making, how to finance operations; in short, how to get started. NAC played an important role in this effort. It helped establish a common vocabulary (e.g. the bibliographic utility and the network service center), clarify state library and network roles and relationships, and provided a forum for examination of common issues and concerns.

Many of these concerns initially stemmed from the very newness of networking. With what authority did network groups speak and plan, what libraries did they represent, was the structure rationale for network planning and growth, and where did these groups fit in the library power structure? Gradually NAC helped sort these issues out and attention was given to more substantive issues.

Contracts became the Linga Franca of networking. For the first time, a very large scale cooperative mechanism was dependent on transfer of real money, not in-kind service. Network governance boards were assuming significant responsibilities on behalf of members. The decision of the OCLC Board to extend services outside of Ohio via contractual relationships with similar groups was a crucial early decision that shaped the course of networking for the next decade and a half.

In retrospect, several decisions seem much more significant now than they did initially. For example, the OCLC Board actually implemented contracts as an administrative task, rather than through network board to network board interaction and agreement. The OCLC Board did not change its own composition to allow representation, even on an ex officio non-voting basis to other boards, but network directors were allowed to observe Board meetings on a limited, rotating basis and minutes were made available. Neither did OCLC ask any of its extended network family to assume direct responsibility or risk for joint funding, to participate in joint development, or to participate in plan-

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ning or joint decision-making. OCLC was, in fact, following a corporate model rather than a cooperative model in its relationship with other networks.

Thus while we learned how to work together to promote and extend networking, we did not learn how to handle joint network collaboration, planning, funding, and decision-making and we did not learn how to share power. The work of LC, RLIN, and WLN in various joint projects is notable by the lack of similar examples in other networks, although more recently internetwork collaboration at the state and regional level is developing.

Networking advanced rapidly because libraries had, for the first time, a complete technology transfer mechanism, encompassing technical planning and implementation, financing, marketing, communications, on-going support, and feed-back mechanisms, on a very large scale. Librarians created their own information channels, user groups, communications, and research projects based on their network participation and experiences. It was an exciting time and perhaps the single greatest period of change in our field.

Problems surfaced that lead to key decisions. Some of the largest academic libraries had never been fully convinced that a generalized network would meet their cataloging needs and some felt that even if it met their needs technically, there were more profound institutional needs and structural changes which the large academic research library uniquely faced. A general network would be unlikely to undertake appropriate collaborative developments and projects. In any case, the governance structure of OCLC, and many state and regional networks, did not provide a sufficient vehicle to allow exploration of these needs. At the same time, network members were beginning to realize that, while they had a contract and network access, and that, while they collectively contributed the bulk of OCLC's funding, they were locked out of its governance.

Although the Research Libraries Group had been founded in 1974, the subsequent decision to create the RLIN network resulted in a trying period for

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all networks. Four basic fears surfaced. First, that a separate, elite network of research libraries would isolate major collections from resource sharing. Second, that state and regional networks would be damaged by loss of prestigious members who made significant contributions to the network, both in financial and in program contributions. Third, that such a network might create a massive financial drain that would cause a fatal blow to all networking. And, fourth, the concern that many library leaders would concentrate their talents on RLIN to the detriment of their colleagues in state and regional networks, that is, that RLIN participants would disengage from all but national network concerns.

The decision not to reach an early rapprochement between RLIN and OCLC and even with regional networks was unfortunate. For the first time, I believe, perceived economic issues - a desire to attract new members on the one hand and the desire not to lose members on the other and RLIN's announced intent not to work through state and regional networks- made it a problem beyond the capability of network decision-making mechanisms to handle effectively. That the most dire predictions were not borne out is testimony to both the resiliancy of networking and the good will of librarians.

The desire for a greater state and regional network role in decision-making lead to a management study for a change in OCLC's governance structure. Although several scenarios were developed by the contractor, and although discussions were held with various representative groups, I believe the OCLC Board made a key decision when it handled this study as largely a management concern. The OCLC Board did not call the boards of its contracting networks together to sort out issues and reach some policy decisions, instead it turned turned to outside consultants to make a study. Ultimately, the governance issue was viewed, not in light of library tradition, national policy, or democratic values, nor in the network desire for a federation of networks, but

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in terms of corporate economics. The database was an asset, the corporation must protect its long term viability, and OCLC management must be free from unreasonable member demands which might lead to financial instability or ruin. The upshot was, in effect, a closed corporate board with limited accountability to membership groups and a concentration of power far beyond that which was so feared from the proposed Federal coordinating agency.

We face a clash in value systems represented by democratic ideals of information access, desire for participation in a broad range of network issues, and protection of network assets. This issue is unresolved.

Database Ownership: The change in the governance structure of OCLC and its concern with the protection of the network as a corporation made it easier, I believe, for the Board to claim copyright ownership of the online database. This claim now appears to be extended, by inference, to various offline products and tapes as well, and to library online catalogs based on OCLC tapes. It is not my intention to labor over an issue which has strong proponents on both sides, but merely to identify it as a crucial decision which may have significant future ramifications for network development and for the philosophical basis from which national networking evolved.

Technology: The thrust of technology is toward the end user-- both the library as end user and the library user as end user. The microcomputer opens the prospect of significant computer power at a price that virtually every library and even every library user can afford. Disc technology holds out the prospect of distributing very large text and data files for local access. Turnkey local systems are becoming more comprehensive and vendors are increasingly providing some type of bibliographic data files as part of their package. Technologies are now in place that would make it possible to implement most of the technical recommendations in both the NCLIS plan and the

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White House Conference resolutions.

The state and regional networks have shown enormous creativity in getting network technology rapidly dispersed throughout the U.S. Libraries have shown enormous creativity in finding funds for network activities and in finding innovative and cost effective uses for network services. Mechanisms are in place that would allow virtually any new network plan, structure, or service to be reviewed, discussed, financed, and implemented within a relatively short time if we drew upon all of our resources - NCLIS, CLR, NAC, RLIN, WLN, OCLC, and the regional networks - and if network members had an opportunity to participate in, or at least be kept informed of developments. The key decisions of the future may well be how to keep local and state databases linked to, and part of, the national network bibliographic structure, and how to keep our goals of national information sharing intact as local systems proliferate.

In summary, libraries have shown an enormous capacity to plan and use network services. Networks have planned and delivered viable, effective services resulting in a new level of technical capability for many libraries. New technology now allows us to pose many alternative network models from highly centralized to highly distributed systems. Services beyond bibliographic control can be supported by many new network configurations. A key issue is how we can maintain contributions to national goals as networking emerges from a governance dominated to a technology driven era.

Section III. National Network Planning

In a paper entitled "Coordinating National Library Programs,"[7] Bob Wedgeworth cited the library field's apparent inability to mount effective national plans and strategies. AACR2 implementation and the National Periodical Center were two examples of frustrated national efforts that came to mind.

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He concluded that "our difficulties lie in our lack of appreciation of the complexities of national coordination in a society where decision making is not centered entirely in the government." He recommended that we discuss basic concepts and understand them before we determine an effective mechanism for national coordination of those library programs that we agree to implement.

He suggested an end to the ad hoc meeting as the principal device for addressing issues. While ad hocracy represents the limits of authority and recognizes the influence of organizations, he contends that it suffers from lack of continued involvement and long-range effectiveness. We all must be willing to recognize the need for representation and responsibility if we move toward national program planning.

Peter Drucker also has some useful insights on long-range planning. He begins by pointing out that planning is not forecasting - we should not sit around and try to mastermind the future. He contends that forecasting is trying to determine the most probable event but that what gets us ahead is the unique event - the innovation that changes what it is possible for us to do. In the past two decades, the MARC record, the OCLC network, the development of state and regional networks, RLIN, WLN, and NAC were innovations that changed the probabilities and enlarged our possibilities.

Drucker stresses that "long-range planning does not deal with future decisions. It deals with the futurity of present decisions."[8] The question is not, What do we do tomorrow? it is, What do we do today to better prepare for an uncertain tomorrow?

Looking back over the past two decades of networking, I have been struck with the many instances in which key decisions were made by trying to project the technological future but neglecting to project the futurity of present decisions. Key decisions in network governance, in defining the scope of national networking, in failing to recognize the new organizational setting

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for networking, and our approach to joint development may have limited our capability to deal with the uncertain future. We may be more limited and more rigid than we needed to be.

I have been frank in identifying key decisions. My intention is not to cast blame; indeed, I was either a participant or an avid onlooker in most of them. My point has been to give us a context for an honest appraisal of where we are now. All of us in this room have collectively labored for hundreds of years for automation, for networking, and for library traditions of open access to information. Each of us starts with a bias toward the institution that we represent.

I encourage you to redefine network goals and give us a new vision of what it is possible for us to do. We can begin by looking, not into the future, but into the present. What do we need to do that we can't get done alone? What critical issues are facing our library members and how can we get these addressed? What gains have we made that are of national importance and how can we keep local efforts channeled to support them? How can NAC's deliberations and recommendations help networkers at all levels keep abreast of issues and, where possible, contribute to solutions? How can we, as networkers, work more effectively to deliver better service? What don't we like about what we have become and how can we change? Can we collaborate, accept the strange paths by which we all got here, and get on with it. How do we get the data to the user in Boise still waiting at the terminal?

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Citations

1 See, for example, the Commission's draft plan A New National Program of Library and Information Service (Washington, 1973. 18 l.) and the draft plan A National Library Network for Resources and Bibliographic Support prepared by Westat, Inc. in May 1974, as well as subsequent formal plans issued by the Commission.

2 The SCATT Report; a Tentative Idealized Design of a National Scientific Communication and Technology Transfer System [by] Russell L. Ackoff [and others] (Philadelphia, Busch Center, Wharton School, 1975) 203 p.

3 Markuson, Barbara Evans, The Indiana Cooperative Library Services Authority - A Plan for the Future . (Indianapolis, The Indiana State Library, 1974). 159, A-92 p.

4 National Commission on Libraries and Information Science, Toward a National Program for Library and Information Services: Goals for Action . (Washington, 1975). 106 p.

5 Swanson, Don R., "Evolution, Libraries, and National Information Policy," in Networks for Networkers: Critical Issues in Cooperative Library Development, edited by Barbara Evans Markuson and Blanche Woolls (N.Y., Neal-Schuman,[1980]) pp. 80-99.

6 Drucker, Peter F., Technology,Management, & Society, (N.Y., Harper & Row, [1973]) p.123

7 Robert Wedgeworth, "Coordinating National Library Programs," in Networks for Networkers: Critical Issues in Cooperative Library Development, edited by Barbara Evans Markuson and Blanche Woolls (N.Y., Neal-Schuman, [1980]), pp.100-108

8 Drucker, op cit, p.131.

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NETWORKS: CHANGING ROLES

Susan K. Martin
April 1985

When I was asked to speak to you today, I inadvertently got two assignments. At first, I was asked to talk about significant people and events in networking during the past two decades. Then my topic was changed, to its present title. But I had thought about the earlier topic, and was having a good deal of fun with it. So rather than give it up completely, I'd like to spend a few moments on an exercise with you using Networking Trivial Pursuit. Please shout the answer to each question:

1. Who was the first executive director of NELINET?
2. What is or was the IUC?
3. Which company performed the simulation of OCLC?
4. Where is Phil Long?
5. Where was Henriette when the first MARC tape was distributed, and how did she celebrate?
6. What did CLSD stand for, and which institutions were involved? What was its goals?
7. What do WLN and the University of Chicago have in common?
8. How many names has USBE had, and what were they?
9. What are the dues for CRL, USBE, and ARL?
10. What was HYCCUP? Who was the driving force?
11. What did BALLOTS stand for? When did it originate, and when did it go out of existence?

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12. What was COMARC? When was it, and what happened to it? What is its successor?
13. Who were the driving forces behind WLN?
14. What happened to OCLC in 1977? Why was this significant?
15. What was OCLC emulation, who was involved, and what happened?
16. How many drafts have there been of the OCLC network contract?
17. When was the Airlie House Conference and what did it advocate?
18. What was SADPO? Who were the principals? Who established it?
19. What was UCUCS? What software did it use?
20. What was the name of the original Ontario network?

With a mixture of mirth and sadness, I'd like to list some names of people and organizations: Larry Livingston, Mary Ann Duggan, Carl Overhage, Intrex, Project TIP, Fred Kilgour, Beehive, Phil Long, BALLOTS, OULCS, WICHE, MALCAP, CAPTAIN, FLECC, MIDLNET, FAUL, Systems Control, Inc., Spiras, COCONABICO, CCLN, Chuck Stevens, Bill Mathews, Jim Skipper, John Linford, John Knapp, John Kennedy, Dick Couper, Ed Shaw.

Do you realize how short a span of time these questions and this list encompass? They reflect a phenomenon which began about fifteen years ago - twenty if you stretch it - and which I think, for various reasons, is gradually evolving into some-

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thing quite different. I don't include in this description the hundreds of consortia of the kind described by Ruth Patrick in her directory of academic library consortia, published, coincidentally, about fifteen years ago. Rather, I refer to the network which would not have come into being without the development of library automation and the establishment of what we call today the utilities. These are the so-called automated library networks, often referred to as the regional networks.

What were the characteristics of networks before automation? They tended to be small - communication became excessively awkward with a large number of institutions. They focussed on specific localities or regions; once again, communicating was easier that way. Or, they had their genesis in a state library agency, which had the resources to bring together the libraries of an entire state. Depending on the locality, they could very well be multitype, incorporating at least academic and public libraries and sometimes special libraries.

What did these consortia do? Primarily they focussed on expedited interlibrary loan among the members of the consortium. Perhaps they owned a vehicle which made deliveries of material throughout the region. Sometimes they managed to share information about location of serials and expensive items, to avoid multiple purchases within the consortium. Often, reciprocal use and borrowing privileges would be made available to the patrons of the libraries.

These functions, outlined very briefly, differ markedly

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from the functions of the current-day automated regional library network. The difference is more than cosmetic. Libraries join regional networks such as PALINET or BCR primarily in order to gain access to the technical capabilities of OCLC, not because they share goals with other member libraries. As OCLC's applications modules have increased in number, it has become necessary for network staff to learn to support each module. For all the regional networks, support of a utility's system is at least a large portion of their activity, and it even comprises the only activity of some networks.

Because libraries join regional networks for a specific reason (access to OCLC), they do not give up their allegiance to existing consortia, particularly if these are locally based. For example, the academic libraries in the District of Columbia all use OCLC through CAPCON. But a preexisting consortium incorporates the interlibrary lending, cooperative collection development, and reciprocal user privileges, among others. CAPCON provides the technical tool, but the substantive programmatically-based activities continue to be solely located within the DC network.

This pattern is not at all unusual, and poses serious questions for the regional networks. They have been in a vulnerable position by definition; they are intermediaries between library and supplier, with the attendant risks if either library or supplier changes course. They are not always substantive in program, and even their substantive programs do not

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represent the bread-and-butter of their members. Therefore libraries have not grown to rely upon them. The librarian knows that he or she relies upon OCLC, but has no clear idea of the role played by PALINET, BCR, or NELINET. That this is true is evidenced by defections from existing networks to form new, smaller, more program-based consortia, or to join networks like RLG or UTLAS.

My thesis is that the span of time from 1970 to 1990 will prove to be a quirk in the history of library cooperation. The regional networks which exist now will either be transformed into consortia which more closely meet the programmatic needs of their members, or they will become extinct. The reasons for believing in this trend revolve around the changing role of the players, and the changing environment.

The Players

Among the players are: libraries, utilities, regional networks, commercial services, turnkey systems, information processors, state agencies, cooperatives such as the Center for Research Libraries and USBE, and national institutions such as LC, NCLIS, and NLM.

Librarians are a cooperative breed, whether by accident or by necessity; it is unlikely that we shall see a decrease in interlibrary cooperation, particularly in the short term. Technological, economic, and social trends do affect the extent and nature of cooperative efforts. The late sixties and early seventies combined a period of relative affluence with the

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flower-child generation and attitude, to create a strong force urging libraries to form new cooperative organizations that simultaneously took advantage of rapidly developing computer and communications technologies. From 1971 to 1977, four major bibliographic utilities began operation in North America, and at least a dozen regional networks were formed to allow libraries access to OCLC. The 1980's, however, with a sharply contrasting conservative political climate, find librarians increasingly seeking alternative means of achieving the results needed on a local basis and much less willing to join or cooperate for the good of the community. In many ways, it can be described as the institutional "me-too" generation.

The utilities have changed as well. UTLAS is now owned by International Thompson; it has become a commercial venture. OCLC is not commercial in name, but it does compete with the circulation, acquisitions, and serials system vendors. It treads a fine line between attempting to be cooperative while at the same time attempting to be competitive. RLG has begun to prosper, but feels the need to change its technical direction toward distributed systems. WLN appears to be unchanged and unruffled.

As I mentioned earlier, the regional networks may be an endangered species. Created rapidly in a burst of enthusiasm by librarians experiencing the expansive thinking which accompanies centralization, they are now undergoing a desertion by the very agencies which <u>established</u> them. Memories are short, and

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their constituencies expect them to be self-supporting and self-sustaining, if not thriving. Instead, they are forced to recognize the fact that they have not diversified sufficiently, and their efforts at renewing the contract which explained their existence are meeting with less than fine success. The networks which are state agency-based are not undergoing this illness, nor are the non-OCLC regional networks.

Commercial services present a completely different picture. We used to complain that, although the library market had much potential, no vendor seemed particularly interested in recognizing this fact. Times have indeed changed. On the conference exhibit floor these days, nontraditional services are beginning to outnumber the displays of publishers, library furniture, and other traditional types. For a number of years, turnkey systems have been highly visible. Joining them are services such as Carrollton Press, Autographics, Faxon's Microlinx, Saztec, and other companies which offer products and services similar to those available from OCLC and UTLAS. As a librarian, if you are satisfied with your local consortium and wish to obtain bibliographic services at a reasonable price, might you not consider Carrollton and AGILE instead of OCLC for retrospective conversion and union catalog capabilities, respectively?

I place turnkey systems into a separate category so as to isolate the computer services from the vendors of hardware/software systems. The latter have been gaining in importance and use since the early seventies; OCLC has recognized this

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fact of life and jumped on the bandwagon with the LS/2000. Of particular importance is the fact that turnkey vendors have recognized the need to support the small, programmatically-based consortia, and many vendors offer a union file capability, allowing several libraries to use one system either independently or together. This approach deals yet another blow to what we now think of as the "traditional network."

Another group of players consists of the data-base brokers or vendors. I believe they belong to this duscussion, but I admit that my perception of their role is hazy. If I worked at DIALOG, I would be thinking about the potential of DIALOG to expand into the interactive library market. It has the computer power and the data bases to support libraries; it does not have, as yet, the interactivity nor the local data elements required by libraries.

Definitely on the upswing are the state agencies. Indeed, wherever regional networking has faltered, the state agencies have the organization, will, and resources to pull the libraries of the state together into a more or less formal consortium. INCOLSA, ILLINET, and MILNET in Maryland are three cases in point. Other regional networks represent states (such as MLC, SUNY-OCLC, and MINITEX), and it is clear that the state library agencies are aware of their opportunities to step in to fill a substantive need. Libraries within the state, when asked to cooperate on behalf of neighbors or to accept funds to be cooperative, are unlikely to say "no"; that would be unpatriotic.

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In past years, librarians have also formed some special-purpose consortia which continue to present a force in the national cooperative arena. Two of these, much alike in many ways, are the Center for Research Libraries (CRL) and USBE, Inc. To their dismay, one of their mutually shared characteristics seems to be the love-hate relationship which their constituencies have for them. Although both organizations have their roots in firmly programmatic activities, they are large membership organizations, and their members constantly wonder about the cost-effectiveness of belonging to the organization. CRL is devoted to the collection of little-used research material, and USBE provides a clearinghouse for exchange and recycling of primarily serial materials. Differences are obvious; CRL has about 180 members, with dues which average $20,000 per member, and USBE has approximately 1,000 members with dues of $200 per year. The weakness of both organizations lies in the fact the they perceived as remote from their users, even if they are located geographically nearby, and therefore do not engender loyalty. The memberships of both groups are uncertain and shift constantly, even though the causes always have been worthy.

NCLIS is a paradox, but has not always been so, I believe. Established to foster networking and to stimulate a national bibliographic network, NCLIS has been overtaken by time and politics. The desires and capabilities of the library community of 1970 are not those of 1985; we have lost interest in a governmentally oriented network, and OCLC and the commercial

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enterprises have shown us that we can obtain what we need for our libraries without becoming indebted to the Federal government. Simultaneously, the agency which began life with such promise has suffered through the Reagan years with inadequate budgets, leaving it still capable of reseach studies about the role of information in society and similar topics, but not sturdy enough to carry out the leadership role envisioned for it in the early 1970s.

I will turn to the Library of Congress as the final player in this particular list. Throughout the decade, LC's role has vacillated from one of an unofficial national library to one of respected but unloved Big Brother. The love-hate relationship which the library world holds for LC is well documented. Less frequently described is the change in LC's role from the 1960's to the 1980's. We must recall that LC is the source of the original MARC format, and of all the formats issued since 1969. For some time, many librarians believed that LC would become the basis for a national library network, coordinating cooperative activities among libraries. But the productive activity of the 1960's failed to provide the basis for a national network; LC was (and is) allowed to distribute bibliographic records, but the nation's network is not within its grasp. We look to LC for resource records, for data base distribution, and for promulgation of standards. But we look among <u>ourselves</u> for substantive leadership.

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The Changing Environment

More than changing players, the modified environment speaks to the alterations in the networking scene. Some, but not all, of the component parts can be described in the short period of time remaining.

Probably the most important environmental factor in networking is the number of libraries involved. OCLC claims to have over 4,000 general members, resulting in an estimated nationwide network participation of nearly 4,500 libraries. Although this figure represents only a small portion of existing libraries, it is large enough to preclude any feeling of mutual interest and cooperation. Why should one user of OCLC feel particularly generous toward any other user? Perhaps this feeling is modified in a network like RLG, where the membership numbers only thirty. But the atmosphere in 1985 does not resemble that of 1975, when OCLC still consisted of a few dozen Ohio academic libraries with a common agenda, and WLN on-line was only a gleam in someone's eye. Numbers breed distance, and cooperation, difficult at best, is apt to fail when the participants are unacquainted with the other members.

A second item refers back to the question of programmatic activities versus computer services. Utilities and networks which offer only computer services are less likely to retain the interest of their members over a long period than those which coordinate programs such as shared collection development,

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cooperative preservation activities, and the like. Unfortunately, as I mentioned earlier, a number of networks have limited their horizons to those computer-based services which can easily be offered by alternative commercial services at a better price. Libraries will examine the price and make judgements on that basis, rather than extending their loyalty to a thinly-woven cooperative. Even worse, librarians may perceive networks as providers of computer support only, even if other programs exist.

Closely linked to the above is the concept of the library as customer for services, rather than partner in a mutually beneficial effort. Five years aso, I queried the ARL directors individually to determine whether they considered themselves to be customers of a network service or partners in a network effort. At that time, approximately one-half considered themselves to be customers; I would suggest that the figure is likely to be higher in 1985. Obviously, if better alternatives made themselves available to the customer, what reason is there to stay with the more expensive service?

The OCLC copyright and contract issues have both been negative forces in library networking. For one, they have alerted librarians to the hazards of becoming closely involved with other institutions. They have also taught librarians the lesson that nothing remains the same; although the network was established with mutual benefit in mind the course of events makes it possible to alter the basic premise of the organization, leaving the library a member of a creature which he or she does

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not quite understand, and certainly does not like. Mixed with the ambiguity between utility and regional network, it is clear that some librarians will opt for cooperative efforts only on their own terms.

Local and distributed systems, together with commercial services, make it unclear that a utility's services may be cost-effective. If a library intends to use a local system for a catalog and other applications, is it necessary that it pay the usually higher costs for a utility's bibliographic records and other services? A local online system may be used in conjunction with bibliographic data purchased from a vendor; the only reason to join a network is the "good citizenship" of interlibrary loan, and the self-interest of shared collection development, if such a program exists.

Conclusion

What do these changes means for networking? In the sense that we refer to the networking of the past twenty years, I think that it means very radical change. Networking has always, or should have always, been a tool, a means to an end. If that end can be accomplished in a more efficient and effective manner without the assistance of a network, the regional network as a phenomenon will either disappear or be radically changed.

Those networks or consortia which are founded upon substantive programs, offering their members a perceived benefit in addition to catalog cards, will thrive and grow.

It is probable that the scene of networking will be signifi-

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cantly altered within the coming years, with commercial firms soon seizing an increasingly large segment of this market.

I will suggest to you that our organizational structures of the past 15 years are passing phenomena, created to serve a specific need at one point in time. Even the utilities may find it difficult to remain alive, in an environment where the private sector is increasingly able to fill the everyday needs of most libraries - and for a better price. The state of Maryland provides a scenario which appears to be behind the times at a quick glance, but which may in fact be a significant portent of the future. Very few Maryland libraries use utilities, and most of the ones that do, use OCLC. There are two RLG libraries in the state, and many libraries obtain cataloging from commercial sources such as Baker and Taylor. The state library agency in Maryland has taken on a network function by collecting all bibliographic data and creating an on-line union catalog; it has begun to discuss cooperative collection development efforts within the state, as well as other activities.

I believe that other states will follow a similar pattern, pre-empting a major portion of the role of regional networks. If OCLC determines that it can work directly with libraries or indirectly through state library agencies, the life span of the regional networks will be curtailed. New structures will be and are being formed, to replace old structures in meeting new needs.

We need an orderly transition from this phase of networking

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to the next. This organization is the appropriate group to tackle this problem, and I look forward to the results of your deliberations.

THE IMPACT OF TECHNOLOGY ON LIBRARY NETWORKS AND RELATED ORGANIZATIONS

Ronald F. Miller
May 1985

1. THE ASSIGNMENT

My assignment for the Spring 1985 meeting of the Network Advisory Committee is to review the evolution of technology and some of the related issues of standards, and to assess their impact upon various kinds of library networks in the United States. In addition, the assignment is to include observations about their impact upon related organizations, and to make "any projections which might be useful."

My point of view is that of a regional multi-state library service organization administrator, faced with the challenge of offering cooperative library services. Many of my comments are derived from a composite memory of the institutional behavior of individual libraries and institutions, as well as the personalities and management styles of individual librarians. These interactions reveal much about the characteristics of networks and other cooperative library organizations since they are composed of separate institutions and individuals. A personal bias of the author is that, generally speaking, library administrators tend to act in their own institutional interest (as they perceive it) rather than in the interest of a dimly defined "greater good" which seems to be far removed from the day-to-day pressures of running their libraries. These interests may sometimes appear to contradict each other.

Library network administrators tend to act in their own institutional interest as well, trying to nourish the survival and growth of their organizations by

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developing and maintaining services which their members/users are either willing to pay for or for which another source will pay for on their behalf. Although these biases may appear to be cynical, they are not intended to be: they merely summarize the author's view that, generally speaking, library network organizations have shifted from setting the "greater good" as a primary organizational goal, to a rationale that focuses upon the viability of their services in a fairly well-defined marketplace. In short, economic forces and the prospect of greater local control have re-emerged as overt causes for key decisions by both library and network administrators. Some recent developments in technology help to support that behavior.

2. NETWORKS AND RELATED ORGANIZATIONS

Although "networks" have been defined in several ways in the past two decades, for our purposes, let's break them down into three types. The first type is the bibliographic utility, which, despite objections from some networks to that label, has come to mean OCLC, RLIN, WLN and UTLAS to most professionals in the field. In recent years, BroDart, Auto-Graphics and others have begun to appear in the list -- even though they are commercial for-profit companies -- because they offer similar online services to those offered by the "traditional Big Four." A case could be made that BRS, Dialog and other data base access systems could be included just as well. And with the recent passage of UTLAS from a university-based network into the heavy seas of aggressive commercialism through its acquisition by International Thompson, and the steady growth of Bibliotekniques as a commercial version of WLN, the cozy definitional lines between the "good" not-for-profit's, and the "greedy" profiteers are becoming tenuous indeed.

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The second category of network includes the regional service organizations which, among other things, facilitate the expansion of the utilities: NELINET, PALINET, CLASS, SOLINET, AMIGOS and the like. Historically, these organizations have drawn much of their strength from their symbiotic association with the utilities, primarily OCLC. Several of them have attempted to diversify into other products and services which has the effect of making them somewhat less dependent upon the utilities for their survival and growth. SOLINET appears to have moved into the utility category on a regional scale, and AMIGOS is developing similar characteristics in the southwest.

There are several other types of networks too: state-wide publicly-funded groups abound; intra-state cooperatives are probably the most numerous, and are also publicly supported for the most part. There are local or geographically close multi-institutional groups built around a centralized computer resource. Circulation control and technically assisted library resource-sharing through improved interlibrary loan and document delivery management are their primary jobs. Most produce some form of member directory and share a common resource data base, which may, in fact, be embedded within a utility. Sub-regional subject-oriented networks abound particularly among medical libraries, for example.

These network groups are characterized as formal, composed of member institutions, and have some resource-sharing goal which is intended to be realized through reliance upon computer and/or communications technology.

These are the network organizations that are the concern of this paper.

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3. WHAT TECHNOLOGY?

In a very real sense, technologies of various kinds have evolved to extend our physical, intellectual and communication capabilities. Despite the negative environmental impacts upon our lives, an abiding belief in the continual improvement in the quality of our lives persists and excites us. No one in the Network Advisory Committee would deny the awesome (and sometimes awful) effects which the various components of technology are having on our professional lives and the services which we as librarians have the potential to offer. To try to sort out some of the particular technologies and to illustrate how the author perceives their interaction, it might be useful to evoke an image of a river.

A. THE RIVER

A river develops and runs toward the sea, its rivulets and tributaries continuously combining, swirling and recombining, seeking a common level, only to be cycled again through evaporation and condensation. One major technological rivulet which affects libraries had its origin in printing presses. This technology moved through mechanical, electric and electronic display technology until today we are amazed, amused and boggled by such mind-bending questions as: "Is a newly formatted textual image appearing on a computer screen equivalent to publishing it?" "Should it be preserved?" "If so, in which medium?" And that rivulet is only one of several which could be traced in this way.

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B. THE COMPUTER

I think we all agree that aside from the typewriter and perhaps xerography, that the most pervasive technological development affecting libraries and their users today is the computer. Very few of the library network organizations noted earlier would exist today if computers, storage and communications technology had not combined as rivulets into a good sized river. The current pre-occupation with converting our bibliographical control tools from print to magnetic or optical images would not be taking place. Almost all networks are in some way involved in assisting libraries to accomplish the goal of "total conversion." Such technology requires new modes of thought, new ways of looking at our work, and networks have a serious obligation to help libraries deal with these innovations.

Although the economics of full-text storage, retrieval and display in the computer environment has not yet reached full viability, the implications for changing -- maybe even eliminating -- our traditional methods of producing and manipulating surrogates of books are beginning to be discussed seriously. Surrogates such as the catalog record, abstracts and indexes of an original work were designed to allow libraries to organize collections and provide access to them. Direct full-text searching may obviate the need for these surrogates since a searcher can find the information in a paragraph without even knowing where or how it may have been published originally. Much of this thinking is going on in universities and the agile minds of commercial entrepreneurs, rather than in libraries. When this kind of manipulation becomes commonplace, then

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what roles will libraries and networks have? Will MARC be necessary at all? Even titles? Citations may appear as:

DIALOG, file 154, para 64D, read 4/19/86, 18:00 hrs.

_____. Ibid, clause XV, 18:30 hrs.

C. THE CHINESE RESTAURANT ANALOGY

In the past eight to ten years, several trends developed: computers have become cheap, small, portable, powerful, and easy to use; computer storage has become cheap, dense and small; communications speeds have increased; the cost of communicating by telephone have increased; the cost, speed and reliability of traditional means to transport library materials has deteriorated; voice and data can be transmitted over the same wire at the same time (even in opposite directions); cable television has become wide-spread. These characteristics can be arranged in parallel lists and combined almost at random, and a new technological innovation (or an idea for one) results. Each combination results in another technological opportunity, or rivulet which can be combined with another, the result of which blurs the edges of previous technology. For example: small computers (micros), combined with high communications costs and dense mass storage, can result in local stand-alone data base systems. These, in turn, can render dependency of libraries upon large control processors obsolescent. That phenomenon coupled with a desire for local control and organizational self-interest can give nourishment to a kind of institutional egocentrism against which cooperative library networks and utilities have been arrayed for several decades.

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The long hours spent attempting to build a plan for a National Program for Library and Information Services relied upon several assumptions: that some form of voluntary compliance would occur for the "greater good," and a prodigious injection of programmatically controlled federal funds to bring it off would evolve. Who could have foreseen then the advent of the compact laser disk or the pervasiveness of microcomputers and their enormous potential effect upon the thinking of library and network management for developing new services?

The spread of the bibliographic utilities has not only provided librarians with tools to provide better service, but has infused many of their participants with a kind of pride in their collective action. At the same time, the very success of these ventures has produced aggressive competition which perceives that money is indeed available in libraries for buying technology and services. Competitors watch for dissatisfaction in the customer base and devise alternative choices. These alternatives not only provide customers with an illusion of new freedom from collective compromise, but also confuse the marketplace: followers are not so sure anymore about who to follow, and pioneers may make bad choices. In the face of this kind of confusion, the pressure not to act runs head-long into the pressure to "do something" or be left out: a classic case of institutional schizophrenia. The number of consultant hours per year spent trying to "return libraries to sanity" surely must be growing at a wonderful rate. Any choice has risk, and a growing concern in calmer minds about standards.

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4. STANDARDS

There can be no doubt that the MARC Communication Format has had an enormous effect upon the growth of networks and the transfer of bibliographic information among libraries and their vendors. Earlier generations benefited from standardization of punched and 3x5 cards; they allowed file drawers and mechanical processors to be produced inexpensively for a large market. In modern times, the rapid growth of technology has left rational and careful standardization behind; the biggest vendor sets a standard, and others may choose to follow or not.

There is constant antagonism between advocates of one standard over another, and business opportunities abound whether standards are developed or not. Companies have been formed to provide customers with the ability to move among various competing standards to reconcile their differences through bi-directional translation and conversion. The belief that this technique can deal with incompatibilities between, say, several stand-alone computerized circulation systems, has allowed individual libraries to select systems which meet their local needs without much concession to communicating with other systems. There are, however, some notable efforts to stipulate such compatibility in Requests for Proposals these days. On a larger scale, the more complex utilities can maintain a gentlemanly distance from each other, and delay the potential loss of business, excessive expense and cost recovery problems by devising ingenious communication protocols over a long period of time. These linkages hold up the prospect of easy communication and data flow among dissimilar systems, so that a library may make a local choice as a primary consideration, and still acquire the capability to communicate with other systems and services.

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5. LOCAL AREA NETWORKS (LANs)

The proliferation of microcomputers in business and to (as yet) a lesser extent in libraries, has led naturally to a logical chain of events which goes like this: one micro appears on the scene, perhaps as a gift, then another and another, as a result of small, uncoordinated purchases by individuals and departments. Many times this accretion occurs willy-nilly beyond the control of the central data processing manager under the guise of word processing. Soon, questions of interconnection, distributed processing and terminal emulation arise, and the makings of a local area network (LAN) are in place, again, a relatively simple solution which purports to reconcile local system selection with a larger organizational purpose.

A LAN permits several micros to communicate among themselves by cable and to share printers, mass-storage devices and special equipment such as color plotters, mini-computers and gateways to other networks outside of a single building. The usual LAN connects such devices within 5000 feet of each other, and was designed to wire a good sized office building for distributed data processing. The granddaddy LAN is the Xerox Ethernet, but several others are on the market and are becoming available from your friendly local computer store. Names like Ungerman-Bass, 3-Com, Omninet and Corvus are beginning to appear in our professional literature, and workshops for librarians have been offered on the subject. LANs are just beginning to appear in libraries because administrative data processing and bibliographic control create demands for local interconnections among micros and shared resources. Universities and industrial libraries are becoming involved first. The dream of the "wired campus" is becoming a reality, through the interconnection of

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LANs through campus-wide cable systems. And they are beginning to be integrated with digital telephone systems: another example of convergent technology (take one from Column A, another from Column B).

6. IMPACTS AND PROJECTIONS

From this author's perspective, some impacts of various aspects of information technology on library networks are:

A. Computer processing coupled with mass storage and dedicated communications networks helped create the "Big Four" (OCLC, RLIN, WLN and UTLAS) and more recently their commercial counterparts. This combination has altered the way libraries control their stock and provide access to their holdings. Regional networks modeled on these organizations have also emerged.

B. The same technology, using dial-up rather than dedicated communications lines, and relying also on computer-based publishing technology, produced data base suppliers such as Dialog, BRS, SDC and a host of others. These on-line reference support systems are becoming pervasive in library reference and public services. They also offer direct services to end users. It is expected that growth in these services will continue and that more data base producers, such as the H.W. Wilson Company, for instance, will increase direct access to their products, avoiding the suppliers as middlemen. This diversity stimulates the development of front-end microcomputer software to help users resolve their "confusion of choice."

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C. Aggressive library networks will market access to data base suppliers and producers to libraries and to selected segments of end users. Suppliers will intensify direct marketing of these services to end users, by-passing libraries altogether. The bigger producers will continue to by-pass suppliers as well.

D. Full text storage and retrieval will grow, but user studies will be necessary to deal with the unknowns about text consultation on computer screens. U.S. standards for character legibility on display tubes will be improved to reduce user fatigue. Library networks, as value-added distributors of data base access services, will not have much of a role in that process, but some of the utilities may advise hardware manufacturers on their specifications. Until then, screen output will probably be printed by the user for off-line consultation.

E. Downloading will become commonplace, whether "legal" or not, particularly through large memory micros, such as the IBM PC/AT.

F. Utilities which depend upon income priced on the basis of transactions against their central data bases will be threatened with loss of income unless they also offer stand-alone local workstations with large capacity local storage devices. Dependence upon expensive communication networks may decline as a result, sometimesreplaced by locally owned networks.

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G. Some regional library networks will weaken, as the centralized utilities services change and local systems replace some of their services. The strength of the regional groups resides in their ability and willingness to deliver a market to the suppliers of library technology quickly and effectively. If a supplier perceives that it can do that by itself better, it will.

H. Some regional networks will prosper and change, depending upon the uniqueness and demand for their services, not only by librarians, but by end-users as well.

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LIBRARY NETWORKS AND THE LAW

Noel E. Hanf
April 1985

Universities can no longer afford to be universities, at least not in the root sense of covering the universe of knowledge. Even less can libraries afford to cover the bibliographic universe. New technology holds out the promise, however, that given sufficient cooperation and sufficient sharing, libraries will be able to provide scholars access to the universe of knowledge, even if all the information is not under one roof. The key to the technological promise is the underlying cooperation and sharing. As the previous speakers have discussed, the new technological revolution brings new players into the game and creates new and different roles for the players already there. The revolution in technology involves a process of constant redefinition of rights and responsibilities. That process involves the law and, worse yet, lawyers. It is important for all of us involved to have a sense not only of the opportunities and limitations of the technology but also a sense of the opportunities and limitations inherent in the legal process. If the promise of the technological revolution depends on a high degree of underlying cooperation and sharing, how can we produce through the legal process the requisite level of cooperation and sharing? It is question we will only answer as we live through the process. Accordingly, it is a great pleasure for me to join your discussions.

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It is, however, a formidable prospect to speak about legal issues to a group whose role is to organize and to improve networks providing library and information services. There are several aspects to this difficulty. The principal one is that while many of you share a variety of things, the only thing all of you have in common is your concern for networks - as libraries, networks, brokers, data base managers, software specialists and foundations. One thing you definitely do not share is legal problems. I should be more precise, you share legal problems in the sense that you all have them, but you do not all have the same problems. Those of you who are nonprofit organizations are concerned with rules for exemptions from federal income taxes and a variety of state and municipal taxes on income, property, sales and the like. Those of you who are state entities are generally not subject to tax, and therefore have only a very indirect concern with tax exemptions. Similarly, those of you who are data base managers and libraries have an interest in the copyright of data bases, but for the rest of you that is peripheral.

Because there is a general lack of commonality in the legal issues you face, I plan to talk about the legal process, with the hope that it will demystify the law for you as you work toward a national network program for library and information services. There is in this some risk of disappointing those of you who hope to leave Washington with some

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immediately useful legal information - how to avoid the sales tax in California, or how to avoid private foundation status under the Internal Revenue Code. To those persons I apologize in advance.

What I would like to talk about is how the law interacts with networks, and how you can, by understanding that interaction, better control the development of library and information services. We can begin with the interaction between law and technology, and the question whether there is such a thing as "information law" or "network law." My answer, as you may already have guessed, is that there is not, except in the most limited sense. The central fact here is that the law predates networks. It may be debatable whether the law arrived before libraries, but it was unquestionably here before electricity, computers and telecommunications. This time sequence sets up the classic interaction between technology and the law. It is not a new interaction, it has occurred in virtually every technological advance. First case: Technology develops rapidly and collides with existing, established rules developed before the technology. Second case: Technology develops and encounters situations in which the legal system has not yet developed rules.

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An example of the first case in my home state is the statute defining a telephone company as an organization owning, leasing or operating wires in, over or under the public streets and highways for the provision of telephone exchange service and "other systems and methods of telecommunications." It is a definition which has, strictly speaking, been inadequate for more than a decade, but it has not presented a problem because until recently, everyone knew what is a phone company. Now with divestiture of the Bell operating companies and reorganization of the communications industry, people are less sure. The definition, which determines who is subject to state regulation of rates, is overinclusive. No one intended that networks or other private organizations be subject to state regulation of rates, and the rule will either not be enforced or will be changed.

For the second case - technology encountering the absence of established rules - a couple of examples are necessary to show the ways the legal system responds. Approximately two months ago there was a conference in this city to explore issues of privacy related to electronic mail. One of the examples considered was a grand jury request for electronic mail messages from the organization which provides that service to its customers. The organization was willing to provide billing records, but responded that the contents of the messages themselves were confidential, and should be entitled to the privacy protection which is afforded to telephone calls. The prosecutor,

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however, argued in effect that the rules related to wiretaps do not apply to electronic mail. The prosecutor was successful. The result, in the absence of a legal rule, is that there is now an effort to obtain legislation.

The response of the legal system is atypical in the example of subpoena of electronic mail. The system is organized to resolve disputes and answer questions, and accordingly its usual response in the absence of a rule is to work by analogy, find a rule, and make it applicable. If at first the system finds no applicable rule, that response is usually only temporary. For example, after the initial efforts to copyright software and data bases in machine-readable media were impeded, legislation was passed for the purpose of enabling copyright protection. The legislation, however, has not ended the problems, because in the case of copyright of machine-readable data bases it has made applicable to the new technology a host of rules originally intended to serve the technology of the printing press. Administrative agencies, courts and interested parties will be hard at work for some time to make the rules applicable to the new technology.

So if we use the phrase "information law" or "network law," it has meaning in only a very limited sense. It keeps lawyers occupied and resolves issues in a creaky fashion, but it was generally designed for

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other problems and other times. It is the best we have at the moment, but it lacks coherence. Coherence is a relative term. On a scale of 100, we could assign 99 to the coherence which cataloguers strive for in a library catalog, and 50 to the coherence in, say, the Internal Revenue Code as presently amended. On that scale the rules applicable to networks and information, or other new technologies, would fall in the 20 to 40 range.

To most of you, it is not news that new technology is confronted with an amalgam of obsolete laws. I have no omnibus solution to offer, but I think that you may be better prepared to deal with the situation if we distinguish among rules in terms of how they are formed or revised, particularly in terms of how many people are required to participate in the process. You are all aware that we get our rules from the legislature, from administrative agencies, from the courts and from private ordering. By private ordering I mean contracts, bylaws and other private arrangements in which the government is, at least initially, not directly involved. The central fact is that as we go from private ordering to an agency, to court or to the legislature, the number of people who participate in the process increases. And as the number of actors increases, the degree of uncertainty inherent in the process also increases.

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Let me spend a minute on private ordering. It is a fancy name for something we do all the time and have been doing in an increasing amount with the advent first of networks, then of local systems and distributed processing. New organizations have been created, new players have entered the game from the private sector, and new relationships are being formed among the entities involved. The relationships between the academic and governmental entities, on the one hand, and the private sector entities on the other hand have been different from the vendor-to-purchasing-department relationship which has existed in the past. More often than not, to unlock the promise of the new technology, contributions are required both from the library or other bibliographic entity involved and from the private sector software specialist or equipment manufacturer. And when the process is finished, the products will be useful both to the vendor and to the library. In this process, as you have all discovered, what information and products are confidential, who gets to use them and for what purpose are essential terms to any agreement. There is also built-in tension. The private sector entity maintains its competitive position through confidentiality and exclusive control of know-how. The academic or governmental entity, however, has either an interest in disseminating information or, if it has borne the development expense, may have an interest in recovering those sunk costs by licensing the new development for its own account. Each deal is different and the only universal rule is that the

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contractual arrangements should try to squeeze all ambiguity out of the question of future use of products and confidential information. Once, when I told one of my favorite university administrators that my role was to squeeze out ambiguity, he looked at me with a shocked expression and responded that, "Ambiguity is the tool of the administrator!" In the end I conceded the role of ambiguity in university administration, and he conceded the importance of clarity regarding the use of proprietary information and products.

I mentioned that as one leaves private ordering and becomes involved with administrative agencies, the legislature and the judiciary, the number of persons involved in the determination and the amount of uncertainty increases. That is not to say that one can always decline to become involved in the larger arena. Even if AT&T wanted to agree with networks on the level for private line tariffs, it could not make the tariffs effective without FCC approval. Carol Henderson's superb recent work with the Congress and the FCC regarding the private line tariffs is a good example of the legal process in an expanded arena. The participants in that matter involved libraries and other bibliographic organizations throughout the country, the Congress and the FCC.

The distinctions among private ordering, administrative agency action and action by the legislature and the judiciary are not bright-line distinctions. Sometimes administrative or legislative action is not

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fully understandable until one discovers the extent to which private interests have participated in the process and affected the result. For example, as the horizons of information technology have expanded during the last decade, networks which are exempt from federal income tax have been trying to determine the extent to which for-profit organizations may participate without jeopardizing the network's tax-exempt status. The IRS issued a series of private letter rulings between 1977 and 1980 in which it approved tax exemptions for organizations in which for-profit entities comprised (a) 5% of total membership, (b) 5% to 15% of gross receipts and (c) 10% of the membership. While it would be possible to devote considerable intellectual energy to reconciling these results, it is more instructive to consider the process in which private letter rulings are issued: lawyers write letters to the IRS, setting forth the particular facts related to their clients. A lawyer whose network client proposes membership for a small number of for-profit entities (who may, by the way, potentially represent a large percentage of the network's gross receipts) is likely to emphasize the percentage of membership, while a lawyer whose network proposes membership for a large number of for-profit entities is likely to emphasize the percentage of gross receipts. The IRS, which is likely to make its decision on the facts contained in the letter without always developing additional facts, integrates these factual statements in its rulings.

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At the outset, I said that the promise of new technology will not be realized without a high degree of cooperation and sharing, and I mentioned a short while ago that as the focal points for resolution of an issue shifts from the private parties involved to governmental agencies and the judiciary, the amount of uncertainty involved also increases. I have been an interested observer over the past two years of the various efforts to register copyright in machine-readable data bases consisting of bibliographic records. There remains enormous potential for cooperation in shared cataloging, but thus far uncertainty is growing faster than cooperation. Applications by OCLC for copyright registration as sole author of the OCLC data base were granted with respect to the on-line data base only. At around the same time libraries obtained registration of separate compilations consisting of bibliographic records of their own collections, created or derived while participating on the OCLC system. Now, lacking assurance they will have unrestricted use of bibliographic records they created or derived on the OCLC system, libraries and at least one network have filed, or announced intention to file, applications for registration of copyright as joint authors of the on-line data base. Each step raises new questions, as the applications encounter rules and procedures which were formulated for the technology of the printing press. It is uncertain whether the matter will be resolved at this stage of the process, through some combination of registrations and compromise, whether new technological developments will

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lead to resolution, or whether the matter will evolve into claims of copyright in individual catalog records - something which commentators have suggested is conceptually possible[1] and which might prove administratively possible if registration of each individual card is not required.[2]

In conclusion, one thing which is certain is that developments in technology and developments in cooperation among the participants will drive the future course of bibliographic networking more than developments in the law will affect that course. In addition, one thing held in common by the technology, the structures of bibliographic cooperation and the law is that we are all standing on the shoulders of those who have come before us. We are able to make progress because others have gotten us here, but it is our responsibility to preserve the structure, to recognize the opportunities which are before us, and to leave a solid piece of work for those who come after us.[3] You have in the Network Advisory Committee persons and resources more than adequate for the task, and I wish you well in the process.

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References

1 Celia Delano Moore, "Ownership of Access Information: Exploring the Application of Copyright Law to Library Catalog Records," 4 Computer/Law Journal 305, 307-15 (1983).

2 See Financial Information, Inc. v. Moody's Investors Service, Inc., United States Court of Appeals for the Second Circuit, No. 84-7110 (12/8/84), CCH Copyright L. Decisions, ¶25,744.

3 Learned Hand, from whom this thought is derived, said it more eloquently with regard to the law:

> When our lights burn low, when we seem to stand futile and without meaning, used up in the senseless strife of interest and passion, concerned with nothing better than to get for others what perhaps they should not have, let us look up to the great edifice which our forebears have built, of which we are now guardians and the craftsmen. Though severally we may perhaps be paltry and inconsequent, for the present it is we who are charged with its maintenance and its growth. Descended to us, in some sort moulded by our hands, passed on to the future with reverence and with price, we at once its servants and its masters, renew our fealty to the Law.
>
> Irving Dillard, The Spirit of Liberty: Papers and Addresses of Learned Hand, p. 69; Knopf (1959).

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GLOSSARY OF TERMS
(used in the preceeding papers)

AACR2	Anglo-American Cataloging Rules, 2nd ed.
A&I	Abstracting and Indexing Service
AMIGOS	AMIGOS Bibliographic Council (Southwest Network)
ARL	Association of Research Libraries
AT&T	American Telephone & Telegraph
BALLOTS	Bibliographic Automation of Large Library Operations using a Time-sharing System (Stanford University, replaced by RLIN)
BCR	Bibliographic Center for Research (University of Utah)
BCR	Bibliographical Center for Research (Denver, CO)
BRS	Bibliographic Retrieval Service
CAPCON	CAPital COnsortium Network (Consortium of Universities of the Washington Metropolitan Area)
CAPTAIN	Computer Aided Processing and Terminal Access Information Network (Rutgers University)
CCLN	Council for Computerized Library Network
CCNBC	Committee for the Coordination of National Bibliographic Control
CLASS	Cooperative Library Agency for Systems and Services (California)
CLR	Council on Library Resources
CLSD	Cooperative Library System Development
COCONABICO	see CCNBC
COM	Computer Output Microform
COMARC	COoperative MARC
COSATI	COmittee On Scientific And Technical Information
CRL	Center for Research Libraries
DIALOG	DIALOG Information Systems (Syracuse, NY)
FAUL	Five Associated University Libraries (New York State)
FCC	Federal Communications Commission
FLECC	Federal Libraries Experiment in Cooperative Cataloging
HYCCUP	Harvard, Yale, Columbia Computer Utilization Project
ILLINET	ILlinois LIbraries NETwork
INCOLSA	INdiana COoperative Library Services Authority
IRS	Internal Revenue Service
IUC	Inter University Council of the North Texas Area
LAN	Local Area Network
LC	Library of Congress
LSCA	Library Services and Construction Act
LS/2000	Local System/2000 (OCLC)
MALCAP	Maryland Academic Library Cataloging Automation Project

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MARC	MAchine Readable Cataloging
MIDLNET	MIDwest Region Library NETwork
MILNET	Maryland Inter-Library NETwork
MINITEX	MINnesota Inter-library Telecommunications EXchange
MLC	Michigan Library Consortium
NCES	National Center for Education Statistics
NCLIS	National Commission on Libraries and Information Science
NELINET	New England Library Information NETwork
NLM	National Library of Medicine
OCLC	Online Computer Library Center (formerly called Ohio College Library Center)
OULCS	Ontario University Library Cooperative System
PALINET	PhiladelphiA LIbrary NETwork
RLG	Research Libraries Group
RLIN	Research Libraries Information Network (of RLG)
SADPO	Systems And Data Processing Office (New York Public Library)
SDC	System Development Corporation
SOLINET	SOutheastern LIbrary NETwork
SUNY	State University of New York
UCUCS	University of California Union Catalog Supplement
USBE	Universal Serials & Book Exchange
UTLAS	UTLAS, Inc. (formerly called University of Toronto Library Automation Systems)
WHCLIS	White House Conference on Library and Information Services (1979)
WICHE	Western Interstate Commission for Higher Education
WLN	Western Library Network (formerly called Washington Library Network)

WORKING GROUP SESSIONS

After the presentations of the invited speakers, C. James Schmidt, chair of the program committee, requested that the committee divide into four working groups to develop a list of key issues and prepare recommendations. After several hours of closed discussions, the working groups presented the results of their deliberations to the committee as a whole.

To facilitate analysis of the presentations of the invited speakers by the working groups, Charles T. Payne and Louella V. Wetherbee prepared a synthesis of each of the papers received before the meeting. They are briefly summarized below.

Barbara E. Markuson: (1) Current deficiencies of the library network structure are the result of past decisions, such as limitations of the scope to bibliographic control, failure to integrate A&I and catalog records, and concentration on library network design and development of systems to serve librarians not end users. (2) No plan for a strong federal role in the library network has ever been implemented. State agencies have not filled the role left vacant by the non emergence of a federal agency. (3) Copyright of databases may have future ramifications for network development and for the basis from which national networking may evolve. (4) Developing technology now allows many alternative network models from highly centralized to highly distributed. (5) The "state network" is an undeveloped resource, but one that could work from the bottom up. (6) The Library of Congress' (LC) key role should not be that of controller of a nationwide network, instead LC should serve as creator of standards (MARC) and technological innovation. (7) NAC needs to redefine nationwide network goals and the goals of the network community.

Susan K. Martin: (1) Automated library networks either will be transformed into consortia to more closely meet the needs of their members or they will become extinct. (2) Utilities are changing to become more commercial. (3) Commercial services provide alternatives such as retrospective conversion and union catalog capabilities. (4) Turnkey vendors are ready to support small consortia. (5) State agencies have the organization and resources to create consortia of libraries within the state, whereas many networks have not.

Noel E. Hanf: (1) The key to the technological promise is cooperation and sharing, a process that involves the law. (2) Information technology is confronted with an amalgam of obsolete laws. (3) Efforts to register copyright in machine-readable bibliographic databases have involved many people and organizations. (4) The potential for cooperation in shared cataloging remains, but thus far uncertainty is growing faster than cooperation.

Working Group I (Charles T. Payne, Recorder): The group used Barbara Markuson's paper as a guide and concentrated on key issues raised or suggested there. Her message in regard to the national bibliographic network is almost deceptively simple—we are what we are: an uncoordinated diversity of national, regional, and local developments, with no effective overall plan. There have been no long range guidelines in force since 1975, and the present situation must be accepted as the building block for future planning.

The group identified the following as important issues for national planning: (1) Extension of existing available technology to all libraries is needed, i.e., small libraries without electronics should be connected to networks. (2) The coverage of standards, such as MARC standards for bibliographic description, should be extended to include subject access, abstracting and indexing (A&I) services, full text data, and electronic publishing. (3) Better information and projections on the future of print during the next decade are needed. For example: Will electronic document delivery and optical storage devices have a major impact on libraries? Will archival functions of libraries change through networking? How will these and other changes affect planning for library space? (4) The "banker" dimensions of networks need to be understood and used, i.e., networks can do for libraries with library dollars what libraries cannot do for themselves. (5) Increasingly, networks are going beyond the brokering of bibliographic utility services and may now include education and training among their functions. The need to coordinate these various activities, reduce or eliminate redundancy, and make needed services more widely available is evident. (6) There appears to be some movement toward the establishment of local and even regional databases that are not connected to the national databases, thus further eroding the concept of a single national database system. Advances in technology may make such moves more widely feasible. A better understanding of the dimensions of the problem is needed in order to make a strong case nationally for a cohesive database system. (7) As with most of the other players, the roles of library funding agencies, both governmental and private, have been changing over the past decade, and will probably continue to do so. Long-range planning for libraries require an understanding of funding agency planning. (8) A national coordinating agency for network development is needed. Such an agency could help fill the noticeable void in our overall ability to collect data, communicate new information, and coordinate developments. (9) A national program for Retrospective Conversion (RECON) is needed in order to efficiently extend the coverage of a national database. In addition, special programs are needed to get largely unknown and inaccessible titles and collections first into machine-readable form and then into such a national database.

Working Group I made the following recommendations.

- That programs be developed to extend the available technology to all libraries.

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- That representatives of publishing and A&I services be included in the bibliographic standards process. That guidelines be developed for standardization of local systems and software for the use of incompatible tapes and databases.

- That the Network Advisory Committee (NAC) commission a paper on the future of the book, perhaps with involvement of the Library of Congress Center for the Book. That the benefits of networking to the archival functions of libraries and the sharing of archival masters between libraries be more widely considered in the designing of libraries and collections.

- That information on how libraries use networks be more widely disseminated to develop and promote programs of both special and general interest.

- That NAC or the National Federation of Abstracting and Information Services (NFAIS) conduct a survey of needs and an inventory of developing network programs and services.

- That an ongoing means of communication among networks concerning programs, particularly education and training programs, be established.

- That a national body monitor the frequency of and reasons for network defections. The review structure should include NAC and the National Commission on Libraries and Information Science (NCLIS).

- That NAC and NCLIS should make every effort to develop and maintain the interest and concern of funding agencies in library programs of national interest.

- That NAC recommend a national coordinating agency for network development. The agency would help to collect data, communicate new information, and coordinate research and development activities.

- That NAC recommend a national program for RECON in order to efficiently extend the coverage of a national database. Special programs should be developed to get largely unknown or inaccessible titles and collections into machine-readable form and into a national database.

Working Group II (Louella V. Wetherbee, Recorder): The group identified a number of concerns, noting that they involve continuing rather than new issues. They involve (1) providing access to technology not only for the information-rich but for the information-poor, including the question of whether larger libraries can be asked to subsidize smaller ones. (2) Roles of the resource-rich Association of Research Libraries (ARL), benefits ARL can expect from cooperation, and hidden costs of networking. (3) Legal issues in connection with copyright

and optical discs, author and publisher rates, Internal Revenue Service (IRS) barriers, confidentiality of records, intellectual property rights, fees, and full text programs. (4) The impact of building new library space, intellectual content and physical access, credit card access, and volume of requests. (5) Archival responsibility in preservation of information and the role of the networks. (6) Levels of responsibility and authority, national objectives for networking, and how objectives are determined. (7) Incorporation of a national subject network into a general structure. (8) Issues of local indexing and local programs. (9) The size of the user universe. (10) The funding and focus of research and development. (11) Cooperation between library schools and networks. (12) Resource sharing among local systems.

Working Group II made the following recommendations.

- That regional networks be used to supply relevant information to the community.
- That NAC provide (a) a statement in support of the National Center for Education Statistics (NCES) and (b) a statement directed toward the improvement of statistics gathering.
- That a plan be developed for the use of such statistics.
- That NAC be the catalyst to convince networks to work together: that state libraries also carry information into the communities.
- That NAC address the impact of changes in networking structures on resource sharing.
- That NAC encourage sharing and understanding between networks and users.

Working Group III (Laima Mockus, Recorder): The group began by stating that the four presentations had provided them with an excellent overview of networking. They were able to identify three categories of broad issues as follows.

Category A issues relate to the overall organizational and political network environment from a long-range perspective and to the need for a new national plan. Issues identified under category A are (1) how and at what level various functions should be performed. (2) Effects of the level at which functions are performed on the functions themselves. (3) Implications of the shift to local networks for interstate resource sharing. (4) Where school and public libraries fit into networks. (5) What the role of the Library of Congress should be in nationwide networking. (6) The relationship of research libraries to nationwide networks, and ways in which the networking community can support that relationship. (7) Roles and responsibilities at the

federal and state levels in networking. (8) The design of an ideal nationwide network.

Category B issues relate to the technical aspect of national network design and include (1) the kinds of national telecommunications support structures needed. (2) Ways in which the A&I and library networking communities can work together to improve access to document content. (3) Methods for including local and specialized collections. (4) Whether research and development is needed for networking and if so, who should pay. (5) Changes libraries need to make as institutions in order to improve networking services to users. (6) The impact of new mechanisms for large-scale document delivery be on networks.

Category C issues relate to other public policy concerns in networking and include payment, training, and a hypothetical national network design. Category C also considers the needs of authors and users in a national network. Specific issues identified are (1) the need for a new national plan, and means for developing it. (2) Balancing the need to protect intellectual property against the needs of authors and users of networking products and services. (3) Sources of funds. (4) The public responsibility of library and network managers in the networking community. (5) Responsibility for educating and training in networking and identification of who should be trained. (6) Measurement of the efficiency and effectiveness of networks.

Working Group III made the following recommendations.

- That NAC identify a common vision for networking, develop a plan, critique the present status of networking and identify what is needed.

- That the plan consider categories A, B, and C.

- That NAC assist NCLIS in the rapid development of a strategy for revising and updating the networking section of its 1975 program document and that the plans and proposed networking relationships be available for consideration at the proposed 1989 White House Conference on Library and Information Services.

- That NAC strongly urge the Secretary of Education to take responsibility for statistical programs.

Working Group IV (Betty Davis, Recorder): The group identified six issues and related questions concerning the issues. No direct recommendations were made.

- Definition of networks.
  Numerous networks have evolved including regional, local,

system-defined, cooperative, etc. The functions, common goals, and goal conflicts of these various networks, need to be clarified.

- Governance of a given network and role relationship between networks.
  Some networks are run on a cooperative basis, others have directors who make decisions based more or less on constituent input. Differences indicated by the extent of constituents participation.

- Products and services provided by networks.
  The demand for new products or services needs to be determined, as does their relationship to the usefulness of a network to its members. Integration of A&I information into current bibliographic network databases and the need for more standards for quality control and its measurement need to be analyzed.

- Planning and coordination.
  There is a need for planning data on both the local and national level. Questions relating to sources and levels of funding, sponsorship of research and development, the role of linking networks, the need for a national plan, and probable adherence to such a plan need to be resolved.

- Legal and economic.
  Ownership of restrictions on its use, competition between networks or network services and commercial companies, and the implications of competition need to be studied.

- Leadership and management.
  Stronger leadership is needed to define a common goal and motivate people to work toward it.

Conclusion and Next Steps

Following the working group reports, Toni Carbo Bearman provided a synthesis of the presentations. She noted that the working groups' identification of key issues reaffirmed the importance of NAC in defining national networking goals and acknowledged that a common vision for networking is needed. She cited four major areas resulting from the working groups' deliberations.

- Political/organizational/contextual. Includes roles of the players—federal, state, regional, local, private, for profit and not for profit, and funding agencies.

- Design/technical. Includes use of technology, standards issues, linking networks, coordination of A&I access techniques with those of library online catalogs, education and training, connecting small libraries and linking networks together.

- o Public Policy. Includes legal issues, research and development, and economic questions such as who pays, and what are the costs, and who will fund.

- o Communication. Includes the need to personalize networking, to convince the library/information community of the importance of networking.

Before concluding the working groups deliberations and transferring recommendations to the advisory committee as a whole, Mrs. Bearman reiterated the purposes of the meeting which were to identify the key issues in the networking field and assist NCLIS in the process of revising the networking section of its 1975 program document Toward a National Program for Library and Information Services: Goals for Action. In order to identify key issues, NAC reviewed developments in networking since the late 1960s, including the changed roles of the players, technological developments, and legal issues. At the same time, counsel should be given to the Library of Congress regarding its role over the next ten years.

RECOMMENDATIONS FOR ACTION BY NAC:

1. Assist NCLIS in a) developing a strategy to update its program document, with a networking perspective, incorporating NCLIS programs and the plans for the proposed 1989 White House Conference on Library and Information Services; and b) implementing the strategy.

2. Identify a common vision for networking and develop a plan to realize it. Accomplishing this task will require an assessment of the impact of local systems on networking and an examination of networks in other fields for implications for library and information networks.

3. Strongly urge the Secretary of Education and directors of other appropriate federal agencies to carry out their important responsibility for gathering and disseminating statistics.

4. Be a catalyst to convince the library and information community of the importance of networking.

5. Review studies from the Library of Congress Center for the Book to determine whether a paper on the future of print materials is needed.

6. Urge federal support for networking and library services.

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SUMMARY OF BUSINESS SESSION

Although business sessions were held at the beginning and the end of the Network Advisory Committee (NAC) meeting, this summary combines them for more logical reading.

Henriette D. Avram, the chairman of the advisory committee, welcomed new attendees William DeJohn representing the Minnesota Interlibrary Telecommunications Exchange (MINITEX), Bette Dillehay representing the Special Libraries Association (SLA), Fay Zipkowitz representing the Chief Officers of State Library Agencies (COSLA), and Mary W. Ghikas from Universal Serials & Book Exchange (USBE). She also extended the committee's best wishes to James L. Wood, the NAC representative of the National Federation of Abstracting and Information Services, on his June 1985 retirement from his position as Director of the Bibliographic Operations Division at Chemical Abstracts Service and thanked him for his contribution to the advisory committee during the last four years.

The next item on the agenda was the status of a paper prepared by Ward Shaw, titled "Expert Systems and Libraries: A Request for a Research Paper for the Network Advisory Committee." The revised paper was sent to NAC members in December 1984 for comments. The original idea was to ask the Council on Library Resources (CLR) for funding to commission such a study on expert systems. C. Lee Jones from the Council suggested instead that NAC consider expert systems and libraries as the topic for a future meeting and appoint someone knowledgeable, or with knowledgeable contacts, as the program planning chair for such a meeting.

Mrs. Avram reported that the proceedings of the November 1984 NAC meeting, "The Information Economy in the U.S.: Its Effect on Libraries and Library Networks," were issued as Network Planning Paper no. 10. She noted that unless papers are submitted by invited speakers, or summaries of presentations are prepared by the program planning members, there will be no published proceedings. Mrs. Avram stressed the importance of publishing the advisory committee's deliberations. She assured the committee members that the Library of Congress will continue to support NAC activities by publishing the summary of each meeting in the Library of Congress Information Bulletin and issuing the proceedings of the meeting in its Network Planning Paper series. The Library of Congress commissioned Lenore S. Maruyama to write a history of NAC, which will be published as Network Planning Paper no. 11, "The Library of Congress Network Advisory Committee, Its First Decade."

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Members were reminded that "Automation Activities in the Processing Department of the Library of Congress" (October 1984-March 1985) was available at the registration desk, together with the Council on Library Resources' "Bibliographic Service Development Program: Progress Report," for the same period.

The next report was on the developments since the meeting on issues in retrospective conversion sponsored by the Association of Research Libraries in Minnesota in July 1984. The underlying question of the conference was whether or not the cause of scholarship could be advanced by a carefully articulated program aimed at a coordinated approach to retrospective conversion of manual bibliographic records to machine-readable form by the research libraries of the country. While support of scholarship and research is the fundamental objective of any retrospective conversion program, the element providing that support is an openly accessible, consistent database of bibliographic records. The Bibliographic Control Committee of ARL has developed a program for coordinated retrospective conversion, based on recommendations from studies investigating the need for a national plan.

Toni Carbo Bearman reported on the work done by the statistics subcommittee. The initial estimated figures distributed at the November 1984 NAC meeting were updated by adding unpublished 1982 National Center for Education Statistics (NCES) data. The updated estimates were distributed as a draft during the meeting and NAC members were asked for comments and suggestions, especially regarding ways in which missing information could be obtained and out-of-date figures updated.

Diane Y. Rafferty, also from the National Commission on Libraries and Information Science (NCLIS), distributed a draft list of public/private sector cooperative projects again and stated that some comments received between November 1984 and May 1985 have been included in the revised list. She reiterated her quest for examples of past and current projects that have demonstrated the effectiveness and efficiency of public and private sector interaction.

Carol C. Henderson prepared a report on a telecommunications coalition that was formed after the divestiture of AT&T's Bell telephone system. It became apparent in 1983 that the Federal Communications Commission's (FCC) access charge proposals and other deregulatory policies would have a major impact on the entire library community. With libraries dependent on the transmission of machine-readable data, much closer and more expert monitoring of FCC actions was necessary. Discussions among the American Library Association (ALA) Washington Office, ARL, and the Capital Consortium Network (CAPCON) led to the idea of a coalition to pool resources in order to obtain the expert advice necessary to mount such an effort. As the

lead organizations ALA and ARL signed a contract with Walter Bolter, Director of the Bethesda Research Institute, for regular part-time monitoring of national and industrial telecommunications developments affecting data transmission by libraries beginning January 1984.

NAC then considered the topic for the next meeting. One of the recommendations arising from the meeting program, to identify a common vision for networking and develop a plan to realize it, was accepted as the topic of the next NAC meeting. Mrs. Avram named Frank P. Grisham (chair), Toni Carbo Bearman, Betty Davis, Carol C. Henderson, Laima Mockus, and Joseph F. Shubert as the program planning subcommittee for the meeting. The meeting dates were set for December 9-11, 1985.

The committee also agreed on the formation of a communications subcommittee, composed of Mary Ellen Jacob (chair), Brett Butler, Lois Ann Colaianni, Bette Dillehay, Carol C. Henderson, Ward Shaw, and Henriette D. Avram. The subcommittee will be responsible for wider dissemination of the results of NAC program sessions and specific recommendations emanating from NAC meetings.

Mrs. Avram adjourned the meeting at noon on May 8, 1985 by thanking everyone for their cooperation and interest in the activities of the Library of Congress Network Advisory Committee.

LIBRARY OF CONGRESS NETWORK ADVISORY COMMITTEE

Chair: Henriette D. Avram

Meeting, May 6-8, 1985
The Georgetown Hotel
2121 P Street, NW, Washington, DC 20037

Agenda

Monday, May 6	Event
	MEMBERS ONLY
5:30 - 8:00pm	Registration/Reception/Dinner
8:15 -10:00pm	BUSINESS SESSION Presiding: Henriette D. Avram
	Old Business
	o Ward Shaw's paper on Expert Systems
	o Minutes of November 1984 NAC meeting (Status report)
	Progress Reports
	Council on Library Resources BSDP semi-annual report
	Library of Congress Processing Services' semi-annual report on automation activities
	NAC Statistics Subcommittee Progress report

Tuesday, May 7	Event
9:00 - 9:15am	PROGRAM SESSION Chairman's Welcome Henriette D. Avram
	Introduction to Program Session C. James Schmidt, Chairman, Program Planning

Tuesday, May 7	Event (Cont.)
9:15 -10:30am	Barbara Evans Markuson, Executive Director, INCOLSA Major developments in networking since the late 1960's (retrospective view and standards)
10:45-12:00 noon	Susan K. Martin, Director of Libraries, Johns Hopkins University How the roles of the players changed (in public and private sectors)
1:30 - 3:00pm	Ronald F. Miller, Executive Director, CLASS Technological developments in networking (including LAN's and standards)
3:30 - 5:00pm	Noel E. Hanf, Esq. Wiggin and Dana Legal issues of networking (overview and comments)
5:00 - 6:00pm	Working group assignments for next day. Group leaders to meet with Program Subcommittee

Wednesday, May 8	Event
9:00 -10:15am	Working groups discussion period
10:30-12:00 noon	Group leaders of all working groups report to full committee Summary and recommendations by Toni Carbo Bearman for C. James Schmidt BUSINESS SESSION Presiding: Henriette D. Avram o Action Items o NAC forum at ALA midwinter o Next Meeting
12:00 noon	ADJOURN